

Claims 9, 21 and 33 are directed to a method of determining a sequence boundary within addressed fragments of eukaryotic genomic DNA. The method consists, for example, of contacting the population of addressed fragments with a target polynucleotide that binds a terminal sequence of a DNA region and identifying a pair fragments that alternatively bind the terminal sequence. The pair of fragments that can include, for example, overlapping sequence or they can include adjacent sequence. The term "adjacent" has a plain meaning, and when used in this context, refers to the fragment sequences being relatively near, having a common border or abutting (Merriam-Webster Unabridged Dictionary, 2003). Claims 9, 21 and 33 are sufficiently clear to those skilled in the art because the method claimed therein is directed to identifying a pair of fragments that have adjacent sequence portions that alternatively bind a terminal sequence of a DNA region. Accordingly, Applicant respectfully requests that this ground of rejection be withdrawn.

Rejections Under 35 U.S.C. §102

Claims 1-3, 5, 7-11, 13-15, 17, 19-23, 25-27, 29 and 31-35 stand rejected under 35 U.S.C. §102(b) as allegedly anticipated over Stephan et al. The office action asserts that Stephan et al. describe a method for determining a sequence boundary which includes all the elements recited in the rejected claims. The office action points to Figure 2A because it allegedly identifies intron/exon boundaries.

When lack of novelty is based on a printed publication that is asserted to describe the same invention, a finding of anticipation requires that the publication describe all of the elements of the claims. *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1349, 48 U.S.P.Q.2d 1225, (Fed. Cir. 1998) (quoting *Shearing v. Iolab Corp.*, 975 F.2d 1541, 1544-45, 24 U.S.P.Q.2d 1133, 1136 (Fed. Cir. 1992)). To establish a *prima facie* case of anticipation, the Examiner must show that the single reference cited as anticipatory art describes all the elements of the claimed invention.

The office action fails to particularly point out each of the elements claimed by in the invention that are allegedly described in Stephan et. al. Instead, the office action provides a cursory statement asserting that the cited reference anticipates the claimed invention. Figure 2A

is pointed to in the office action as allegedly noting the identification of intron/exon boundaries. Figure 2A a and its associated figure legend refer is a schematic drawing of a cDNA that appears to show its exon structure. Neither the figure or the associated figure legend describe the claimed methods of the invention.

Moreover, the office action neither provides a rational or points to particular descriptions in Stephan et al. that appear to show the steps of the claimed method or each element claimed in the claimed steps. In particular, Office has failed to show that Stephan et al. describe a method for determining a sequence boundary, where the method employs the steps of: (a) contacting a population of addressed fragments of eukaryotic genomic DNA with a target polynucleotide, the target polynucleotide binding a terminal sequence of a DNA region, the addressed fragments of eukaryotic genomic DNA being at least 100 nucleotides in length; (b) determining a relative order for 2 or more of the addressed fragments compared to a sequence of the genomic DNA; (c) identifying a pair of fragments among the 2 or more addressed fragments that alternatively bind the terminal sequence of a region, and (d) determining for the sequence of the genomic DNA a relative location of a boundary of the region compared to a location of at least one genomic DNA fragment in the pair. Absent such a showing, the office has not satisfied its burden. Therefore, the cited reference cannot anticipate the claimed invention and withdrawal of the rejection is respectfully requested.

Rejections Under 35 U.S.C. §103

Claims 4, 16 and 28 stand rejected under 35 U.S.C. §103(a) as allegedly obvious over Stephan et al. The office action asserts that Stephan et al. describes a method for determining a sequence boundary or plurality of sequence boundaries which contains all of the limitations recited in claims 4, 16 and 28 except for the explicit description of using RNA as a target polynucleotide. The office action asserts that because RNA is the complement of cDNA the substitution of one known reagent with a second known reagent is routine in the art and would perform its expected function.

Claims 12, 24 and 36 stand rejected under 35 U.S.C. §103(a) as obvious over Stephan et al. The office action similarly asserts that Stephan et al. describes a method for determining a sequence boundary or plurality of sequence boundaries which contains all of the limitations recited in claims 12, 24 and 36 except for the description of using DNA fragments of at least 1000 bp in length. Again, the office action asserts a reasonable expectation of success for the substitution of one known reagent with a second known reagent because it was routine in the art and would perform its expected function.

Claims 6, 8 and 30 stand rejected under 35 U.S.C. §103(a) as allegedly obvious over Stephan et al. in view of Dale. The office action asserts that Stephan et al. describes a method for determining a sequence boundary or plurality of sequence boundaries which contains all of the limitations recited in claims 6, 8 and 30 except for the description of using particles as the surface to address fragments of eukaryotic DNA. Dale is alleged to describe an array on beads. The office action concludes that it would have been obvious to substitute the glass slides described by Stephan et al with the beads of Dale in order to gain the advantages allegedly recited by Dale.

To establish a *prima facie* case of obviousness, the Office must show that the prior art would have suggested the claimed invention to one of ordinary skill in the art and that it could have been carried out with a reasonable likelihood of success when viewed in the light of the prior art. *Brown & Williamson Tobacco v. Philip Morris*, 229 F.3d 1120, 1124 (Fed. Cir. 2000), accord *In re Royka*, 180 USPQ 580 (C.C.P.A. 1974) (to establish *prima facie* obviousness, all claim limitations must be taught or suggested by the prior art); M.P.E.P. §2143.03.

Each of the above rejections under 35 U.S.C. §103(a) are based on the conclusion that Stephan et al. describes all of the elements of the base claims to which the rejected claims depend. However, as described above with reference to the rejection under 35 U.S.C. §102(b), the Office has failed to make a *prima facie* showing that Stephan et al. appears to describe each and every element of the invention as claimed in independent claims 1, 13 and 25. In particular, the office action neither provides a rational or points to particular descriptions in Stephan et al.

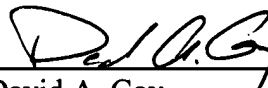
that appear to show the steps of the claimed method or each element claimed in the claimed steps. For example, Office has failed to show that Stephan et al. describe a method for determining a sequence boundary, where the method employs the steps of: (a) contacting a population of addressed fragments of eukaryotic genomic DNA with a target polynucleotide, the target polynucleotide binding a terminal sequence of a DNA region, the addressed fragments of eukaryotic genomic DNA being at least 100 nucleotides in length; (b) determining a relative order for 2 or more of the addressed fragments compared to a sequence of the genomic DNA; (c) identifying a pair of fragments among the 2 or more addressed fragments that alternatively bind the terminal sequence of a region, and (d) determining for the sequence of the genomic DNA a relative location of a boundary of the region compared to a location of at least one genomic DNA fragment in the pair. Absent such a showing, the office has not satisfied its burden. Because all the elements of the claimed invention are not taught or suggested in the cited reference or references, Stephan et al. cannot render the invention of claims 4, 6, 8, 12, 16, 24, 28, 30 or 36 obvious and withdrawal of the rejection is respectfully requested.

CONCLUSION

In light of the above remarks, Applicant submits that the claims are in condition for allowance and respectfully request a notice to this effect. The Examiner is invited to call the undersigned attorney if there are any questions.

Respectfully submitted,

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